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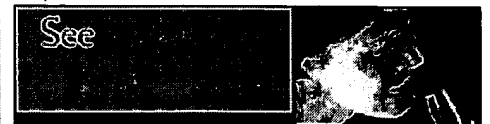
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dulse**[duhlss]**

Hailing from the British Isles, dulse is an edible, coarse-textured, red SEAWEED with a pungent, briny flavor. When dried, dulse remains supple though rubbery, which may be why some stalwart Irish use it like chewing tobacco. Dulse is primarily used in soups and condiments.

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Alaska Science Forum

June 29, 1981

Herpes Virus Article #495

by T. Neil Davis

This column is provided as a public service by the Geophysical Institute, University of Alaska Fairbanks, in cooperation with the UAF research community. T. Neil Davis is a seismologist at the institute.

The waters of southeast Alaska have something to offer to sufferers of herpes viruses: two species of seaweeds of the Rhodophyta (red algae) group that grow along the coast have been found to relieve symptoms of herpes infections.

Herpes viruses cause a variety of diseases that range from cold sores to the more-serious genital herpes which can produce painful blisters. It can cause death to infants and perhaps cancer in women. The virus that causes cold sores is named herpes simplex virus Type 1. Herpes simplex virus Type 2 causes genital herpes.

These viruses attack skin or mucous membrane cells where they become parasitic upon the normal processes in the cells. The infestation is difficult to attack with antiviral drugs because the drugs also attack the host cells. Genital herpes is transmitted sexually and is now considered to have reached epidemic status in the United States with 300,000 new cases being reported each year.

Newborn babies can contract the disease by passage through the birth canal of an infected mother. Death can result if the virus reaches a baby's brain. So far, there is no known cure for genital herpes virus. Once a person is infected, the condition is lifelong.

One encouraging development is that two Alaskan researchers, Natasha I. Calvin and Robert J. Ellis, of Juneau, have discovered that two species of seaweed relieve the symptoms of herpes virus. Dried and powdered, these red algae seaweeds reduce blistering when placed on the affected skin. The natural herbs, known as Alaskan Dulse, can be purchased in several Alaskan pharmacies. Some Alaskan physicians and dentists are reported to be recommending the herbs and may be able to suggest sources of supply.

The Alaska Council on Science and Technology now is funding scientists Calvin and Ellis in efforts to define the extent of the habitat of the red algae and to determine how much is available for harvest. The algae are thought to grow only along certain parts of the subtidal coastline of southeastern Alaska. One of

the objectives of the research is to see if it might be possible to produce more of the algae through mariculture.



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Vegetarian Times

April, 1997

Medicine from the sea. (medicinal qualities of sea plants)(includes related articles and a list of sources)(The Herbalist)

Author/s: Ginger Webb

"Seaweed is a healing food for the modern era," observes John Lewallen, an herbalist, from his kitchen in Mendocino, Calif., where he is packaging seaweed at the kitchen table. John and Eleanor Lewallen are owners of the Mendocino Sea Vegetable Company, a small, direct mail company that specializes in "wildcrafted" seaweeds, which means seaweed responsibly gathered from the wild. "Seaweed contains a wide spectrum of organic material including trace elements that are lacking from Western diets," says Lewallen while sipping a cup of wakame tea prepared by soaking the seaweed in boiled water.

Scientists at the National Cancer Institute (NCI) in Bethesda, Md., agree with Lewallen that sea plants contain a remarkable spectrum of components valuable for human health. David Newman, Ph.D., a chemist with NCI's Natural Products Branch says his research team is currently testing 15,000 compounds from about 6,000 marine species including algae, fungi, coral and seaweed for their biological activity. Many appear to have powerful anti-inflammatory, antiviral, antimicrobial, antifungal, anticancer and immuno-suppressive (useful in treating autoimmune diseases) properties.

Newman is particularly intrigued by the powerful anticancer properties of an algae found off the coast of Curacao, named Curacin-A, that appears to be more potent than taxol, a substance isolated from the bark of yew trees that is used to treat breast and prostate cancer. To date, the algae has not been developed as a pharmaceutical agent because the highly insoluble substance can't be extracted from the algae to "deliver" it in drug form. Newman hopes that, eventually, scientists will find a way to extract Curacin-A (a process requiring the help of an as-yet undiscovered solvent), noting that it took almost 10 years for scientists to find the right solvent to extract taxol. Once the material can be extracted, Newman adds, it can be "packaged" in a suitable, standardized pharmaceutical form for clinical evaluation.

Fortunately, the pharmaceutical industry's difficulties don't have to be yours. Even though drug manufacturers cannot patent an entire plant and therefore cannot make a dime on them, you can still

receive amazing health dividends by consuming this and other natural products from the sea. And you don't have to wait. They're available now at natural food stores and by mail.

THE OTHER SEAFOOD

To people whose cultures have evolved by the sea, where seaweed has been a dietary staple for hundreds, if not thousands of years, the benefits of sea plants are well-known. In the West, seaweed is best known as an exotic ingredient in Japanese and macrobiotic cuisine. To coastal people everywhere, however, it's a dietary staple, enjoyed in Iceland, Scotland, Ireland, Hawaii and other Pacific Islands and coastal regions of the United States. A treasure chest of good nutrition, seaweed absorbs nutritive elements directly from the ocean water in which it lives.

By eating seaweed, we tap into the ancestral source of all life, the ocean, and replenish our bodies from this vast reservoir with essential and sometimes hard-to-get nutrients. Most varieties of seaweed contain between 10 and 20 percent protein and are rich in fiber and vitamins, including A, C, E, B complex and [B.sub.12], and minerals, including calcium, iodine, potassium, iron and trace minerals.

"People are like walking oceans. Our bodily fluids have the same composition as sea water," says Ara Der Marderosian, Ph.D, professor of Pharmacognosy at the Philadelphia College of Pharmacy and Science. "Sea water has been shown to contain organic acids, sterols, carotenoids, carbohydrates, proteins, fats, peptides, amino acids, free enzymes and many other materials, including essential trace minerals."

AN OCEAN OF PROMISE

Among Herbalists, seaweed is treasured for its ability to nourish and strengthen the body. Bladderwrack (*Fucus* spp.), for instance, has been used in steam baths by Native Americans for rheumatism and illness. Dulse (*Palmaria palmata*) is used by people in Japan to treat colds. Because of its high iron content, seaweed is often given to anemic people by herbalists, as well as to menstruating and lactating women whose iron requirements are high. Adding seaweed, particularly wakame (*Alaria* spp) to the diet is believed to increase hair growth and luster and improve skin tone.

In Japanese folk medicine, the seaweed *Digenea simplex* has been used traditionally to rid the body of intestinal worms. Today, kainic acid, derived from this seaweed, is sold commercially for this purpose. *Laminaria* spp., another seaweed native to the Japanese coasts and valued as a folk medicine, has been shown to be capable of lowering blood pressure. Several studies on the usefulness of seaweed derivatives, other than Curacin-A, for protecting against cancer and heart disease are currently underway.

Despite these scientific studies, most of our knowledge about the benefits of seaweed still derive from folklore and the herbalist tradition. Western doctors may be catching on, however. A Manhattan plastic surgeon, Michael Joseph Pober, M.D., uses seaweed topically with post-surgical patients to restore skin texture

and reduce swelling in surgical incisions.

Michael Tierra, an herbalist, licensed acupuncturist and author of *The Way of Herbs* (Pocket Books, 1990), explains that in traditional Chinese medicine, seaweed is considered a yin tonic, that is, it has "warming" characteristics. It is good for conditions characterized as "cold" such as poor circulation, anemia and chronic diseases of the thyroid or pancreas.

Seaweed's antioxidant properties make it specific for prevention and treatment of cancer, supporting the immune system in eliminating the proliferation of cancer cells, says Tierra. Seaweed is considered a medicinal substance with wet, softening properties, which, according to traditional Chinese medicine, Tierra explains, enables it to dissolve hard nodules and tumors and to reduce swelling of the thyroid and lymph glands. Efram Korngold, a doctor of Oriental medicine and a licensed acupuncturist, adds that because seaweed helps decongest swollen or inflamed lymph nodes, it can be consumed as a treatment for autoimmune illnesses, including chronic fatigue, HIV, arthritis and chronic allergies.

In U. S. scientific studies in the 1970s, an entire family of red marine algae was found to possess antiviral properties. One species, *Cryptosiphonia woodii*, a microalgae found in inner-tidal areas along the Pacific coast, was found by Scripps Institute researchers based in La Jolla, Calif., to suppress the herpes virus and clear out *Candida* (*Candida albicans*), a systematic yeastlike fungal infection. Both Korngold and Tierra offer a supplement made of dried whole plants to clients in their clinical practices with these problems and claim exciting results.

DETOXIFICATION DUTY

Seaweed may be especially important for people in the modern age because of its ability to protect us from damage caused by toxic elements in the environment, including heavy metals and some types of radiation byproducts. Rosalie Bertell, M.D., president of the International Institute of Concern for Public Health in Toronto, believes that seaweed can help pull dangerous heavy metals out of the body. Research at McGill University in Montreal has shown that sodium alginate, a derivative of wakame, binds with radioactive strontium 90 in the body, allowing it to be excreted. Strontium 90 is considered the most dangerous component of atomic fallout.

Ernest J. Sternglass, Ph.D., professor emeritus in Radiation Physics at the University of Pittsburgh School of Medicine, explains how strontium adversely affects health: "When radioactivity, spread from nuclear waste dumps or fallout from other nuclear facilities, gets into the drinking water, gets into the milk and gets into the vegetables, it lodges in our bone. It goes through the food chain and concentrates. As a result, materials like strontium [produce] an internal radiation throughout our body, [irradiating] the whole bone marrow where the cells of the immune system originate." These internal doses of radiation can weaken the immune defenses of the body needed for fighting disease. In fact, many herbalists recommend adding some seaweed to the diet for a period of time if you plan on having X-rays taken, to encourage the excretion of any radiation products left by the treatment.

Mindy Green, an herbalist at the Herb Research Foundation in Boulder, Colo., believes everyone can benefit from seaweed in the diet. "It's highly nutritious and is a good source of minerals that are often short in the diets of women, especially vegetarian and vegan women, such as iron, calcium, iodine and magnesium," said Green. Her personal preference is for a kelp wildcrafted off the northern coast of Washington state. She either toasts the kelp or nibbles on chunky chips of it as a snack. Green also favors a thick seaweed called kombu in vegetable soups and stews along with astragalus in the winter and uses hijiki and wakame in salads.

One caution about seaweed from herbalist C.J. Puotenon, a columnist for the Northeast Herbalist Association Journal published in New York. She points to a commonly overlooked cause of acne flare-ups: iodine, which explains why herbal treatments that emphasize kelp can sometimes make the problem worse in individuals who are iodine-sensitive. So if you avoid iodine-containing salts and seafoods or iodine-based therapies because they trigger acne problems, add seaweed to the "to be avoided" list.

Dulse Cold Cure

Herbalist Susun S. Weed from Woodstock, N.Y., swears by this seaweed cold remedy. Traditionally, seafaring folk added a bit of rum.

Handful of dulse 1 quart hot water Honey and lemon to taste

Soak a handful of dulse for 10-15 minutes in enough hot water to cover. Then cook the dulse in that water, at very low heat, for 15-20 minutes. Strain. Save seaweed; add to soup or compost. To the liquid, add honey and lemon juice to taste.

Ginger Webb is an herbalist and a staff writer for HerbalGram, the quarterly publication of the American Botanical Council. She resides in Austin, Texas.

Quick Guide to Sea Vegetables

Although some might find the marine odor and taste of seaweed initially unappealing, seaweed connoisseurs are often made, not born. For most of us, seaweed is definitely an acquired taste. Packaged, dried seaweed is available in most natural food stores and Asian markets. However, by far the best seaweed is from wildcrafters, people who gather and dry seaweed themselves along the coastlines. Wildcrafters tend to be conscientious, conscious of quality and environmental concerns such as pollution and overharvesting. You are ready to try seaweed but don't know how to add it to your diet? Here are eight ways:

- 1 Make sushi rolls with sheets of nori, wrapping them around rice and vegetables
- 2 Crumble over rice, baked potatoes or casserole dishes
- 3 Add to spaghetti sauce or quiche as a thickening agent

4 Make into a hot broth or add to soup stock

5 Stir-fry with tofu and vegetables

6 Nibble an it instead of potato chips or sprinkle on your popcorn

7 Add to beans, soups or stews:. especially good with miso soup

8 Add raw to fresh garden salads

Where to

Order

If you can't find a local source from which to buy wildcrafted sea vegetables, here are several mail order sources that stock them:

Ryan Drum Waldron Island, WA 98297

Maine Seaweed Company P.O. Box 57 Steuben, ME 04680

Eleanor and John Lewallen Mendocino Sea Vegetable Company P.O.
Box 1265 Mendocino, CA 95460 (707) 937-2050

In Life Energy Systems (for red marine algae) 107 California Ave. Mill
Valley, CA 94941 (415) 389-1738)

Sea Vegetable

Cookbooks

Want to find more ways to include sea vegetables in your diet,
recommended cookbooks include:

Macrobiotic Cooking for Everyone by Edward and Wendy Esko (Japan
Publications, 1980)

Sea Vegetable Gourmet Cookbook by Eleanor and John Lewallen
(Mendocino Sea Vegetable Company Press, 1996)

The Self-healing Cookbook by Kristina Turner (Earthtones Press,
1987)

Natural Foods Cookbook by Mary Estella (Japan Publications, 1985)

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Grand Manan & White Head



Sea Vegetables

Dulse (*Palmaria palmata*) - is a red seaweed that grows attached to rocks by a "holdfast" in the North Atlantic and Northwest Pacific. It is commonly used in Ireland and Atlantic Canada both as food and medicinally and is now shipped around the globe. Dulse is found in many health food stores or fish markets or can be ordered directly from local distributors.

Dulse grows from the mid tide portion of the intertidal zone (the area between the high tide and low tide) and into deep water. Fronds may vary from rose to reddish-purple, and range from about 20 to 40 cm (8" to 16"). From June through September, it is picked by hand at low water, brought to drying fields (or spreading grounds) and put through a shaker to remove shells pieces, etc. The fronds are spread thinly on netting and left to dry, turned once and rolled into large bales to be packaged or ground later.

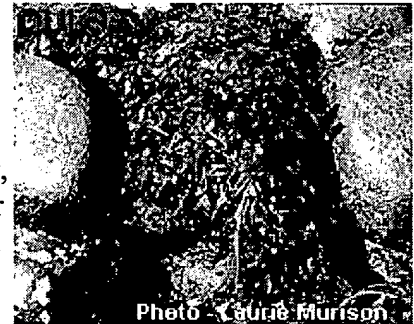


Photo - Laurie Morrison

Grand Manan is known for the **best dulse** because of the geography of the island. On the western side high cliffs shade the intertidal zone protecting dulse from bright sunlight during the morning. "Dark Harbour dulse" is darker, thicker and more flavourful than dulse growing elsewhere, including the eastern side of Grand Manan and the other islands in the Archipelago. Dulse grows quickly in the summer and the same shores may be picked every two weeks.

Sun-dried dulse is eaten as is or is ground to flakes or a powder. It can also be pan fried quickly (garlic butter optional) into tasty chips, baked in the oven covered with cheese then add salsa, or microwaved briefly for a crispy treat. It can also be used in soups, chowders, sandwiches and salads, or added to bread/pizza dough. Fresh dulse can be eaten directly off the rocks before sun-drying. A variety of dulse is cultivated in Nova Scotia and marketed as Sea Parsley, sold fresh in the produce section.

Dulse can be pressed in a plant press and mounted on cards or as a collage, mixed with other seaweeds or plants and flowers. The reddish translucent, dried plants make an attractive specimen. Protect from direct sunlight.

Dulse is a good source of dietary requirements. A handful will provide more than 100% of the daily amount of Vitamin B6, 66% of Vitamin B12, a days supply of iron and fluoride (great for strong teeth), and it is relatively low in sodium and high in potassium. It contains the following:

Element	Percentage	Dietary amounts
Protein	25.3	21.5g/100g
Carbohydrate	44.2	44.6g/100g
Fat	3.8	1.7g/100g
Calories		264/100g
Mineral salts	26.7	
Sodium	0.47	1740mg/100g
Potassium	7.11	7820mg/100g
Calcium	2.5	213mg/100g
Iodine	0.008	5.2mg/100g
Iron	0.15	33.1mg/100g
Magnesium	0.22	271mg/100g
Copper	0.026	0.376mg/100g
Zinc	0.0041	2.86mg/100g
Nickel	0.0072	
Cobalt	0.000013	
Fluorine	0.0015	5.3mg/100g
Manganese		1.14mg/100g
Molybdenum	0.000031	

Silica	0.6	
Chromium	Trace	0.150mg/100g
Strontium, Vanadium, Titanium	Trace	
Vitamin A		663 I.U.
Vitamin B1 (Thiamine)		0.073mg/100g
Vitamin B2 (Riboflavin)		1.91mg/100g
Vitamin B3(Niacin)		1.89mg/100g
Vitamin B6 (Pyrodoxine)		8.99mg/100g
Vitamin B12 (Cyanocobalamin)		6.60mcg/100g
Vitamin C		6.34mg/100g
Vitamin E		1.71 I.U.

g = grams, mg = milligrams, mcg = micrograms, I.U. = International Units

[Roland's Sea Vegetables Main Page](#)
[\(Roland's dulse recipes\)](#)

[Jerry & Leroy Flagg Dulse](#)

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OTHER USEFUL SEaweeds:

Sea Lettuce (*Ulva lactuca*) - eaten fresh or added to salads, the bright green sea lettuce is a tasty addition.

Sea lettuce grows in thin sheets up to 30cm (or 1') attached by a "holdfast" to exposed rocks or detached in tide pools. Unfortunately, it thrives in moderate pollution so picking areas should be scutinized.

Sea lettuce can be pressed in a plant press and mounted on cards or as a collage , mixed with other seaweeds or plants and flowers. The green translucent, dried plants make an attractive specimen. Protect from direct sunlight.

Laver or Nori (*Porphyra*) - eaten fresh or sun-dried, laver can also be dry roasted and crumbled into soups, grains, popcorn, salads, made into laver bread (soaked, mixed with oats and fried), sauteed with vegetables, or cultivated "Asian" nori processed into sheets for sushi wrap.

Laver can be pressed in a plant press and mounted on cards or as a collage, mixed with other seaweeds or plants and flowers. The translucent, dried plants make an attractive specimen. Protect from direct sunlight.

Laver or nori grows in thin sheets on rocky shores, attached by a "holdfast" and is found from mid to low tide in the intertidal zone. Colour varies depending on the species and the amount of exposure to sun but most are a reddish hue. Harvesting is best during mid-summer.

Irish Moss (*Chondrus crispus*) - has long been a popular food, used most frequently to prepare blanchmange. Irish moss is over 60% carrageenin, which is extracted and used as a gel in industry, pharmacy and as a thickener in soups and dairy products.

Irish moss is found on rocky shores attached by a "holdfast" in the lower intertidal area, growing to 17 to 25 cm (7 to 10"). The blades are flattened and forked repeatedly ranging from a dark purplish red to brown, green, yellow or white, depending on the exposure to sunlight.

With some arranging and trimming, Irish moss can be pressed in a plant press and mounted on cards or as a collage, mixed with other seaweeds or plants and flowers. The dried plants make an attractive specimen. Protect from direct sunlight.



Irish Moss

Kelp or hollow-stem kelp (*Laminaria longicruris*) - is sliced and added to soups, beans or stews but unlike Japanese kombu it cooks quickly and should be added during the last 20 minutes of cooking. Pan-fried crispy chips, dry roasted flakes or pickled in vinegar are other possibilities.

Kelp typically grows along rocky shores below the low water mark, attached by a "holdfast" and reaching lengths of 4.5 to 11 m (or 15 to 36'). They are best harvested in early spring before they sporulate and are grazed by periwinkles and sea urchins. The blade is long and unbranched with an indentation before the stem begins. The stem is hollow above the holdfast.

Alaria or edible kelp (*Alaria esculenta*) - is perfect for soups, delicious raw in salads (presoaked or marinated), very similar to Japanese wakame.

The kelp fronds grow to 3 m (10') and are typically found along rocky shores below the low water mark, attached by a "holdfast". The blade is frayed with bladelets along the stalk. The stalk is solid.

Rock Weed or Knotted Wrack (*Ascophyllum nodosum*) - is a common brown seaweed growing attached to rocks with "holdfasts", completely carpeting boulders, not to be confused with another common rock weed, bladder wrack (*Fucus sp.*). The fronds grow to 60cm to 3m (2 to 7'). Knots or air bladders along the narrow branches suspend the seaweed when the tide comes in. During spring and summer forked reproductive nodules form on the tips of branches. Knotted wrack becomes detached from rocks in storms and forms floating mats or seaweed patches that drift offshore. When the patches are carried on shore, they accumulate along the high water mark, gradually breaking down, releasing nutrients back into the intertidal area.

Knotted wrack is cut from rocks while the plants are suspended using small boats and cutting rakes to minimize the disturbance of the plants. A portion of the plant remains attached to the rock for further growth.

The plants are used in animal and human feed supplements, as a component of industrial products, and as organic fertilizers. Small scale collecting, grinding and spreading of raw seaweed on fields and gardens has been a traditional practise for hundreds of years. The commercial

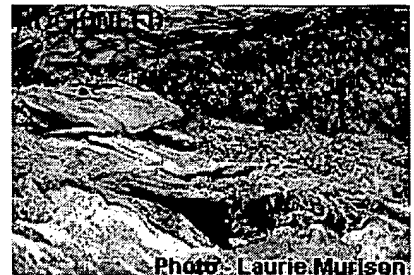


Photo: Laurie Munson

harvest allows this source of organic fertilizer to inland areas. A compound called alginate is also derived from the seaweed and used in a variety of applications.

The commercial rockweed harvest has been common place in Nova Scotia for thirty or more years and has recently been expanded to New Brunswick as a response to the increased demand for products. The expanded harvest is controversial with many disagreeing with the practise because of the potential impact on larval fish, periwinkles, etc. The Canadian Department of Fisheries and Oceans states "It is clear careful management of the harvest is needed not only for renewal of the resource but also to keep disturbance in the habitat to a level the ecosystem as a whole can absorb."

Rock Weed or Bladder Wrack (*Fucus spp.*) - is also a common brown seaweed growing attached to rocks with "holdfasts", completely carpeting boulders, not to be confused with knotted wrack (*Ascophyllum nodosum*) - see above. The forked blades may grow up to 0.9 m (3') in length. Air bladders and fruiting bodies are present on the ends or along the blades. Rocks entirely covered with either bladder wrack or knotted wrack provide a cool, moist environment underneath when the tide goes out, protecting such things as crabs, periwinkles and whelks until the tide returns. Bladder wrack may also form mats of floating seaweed when torn from the rocks during storms and come ashore forming tide lines along the beach. The biological breakdown of rockweed tide lines returns nutrients to the intertidal zone.

Bladder wrack is collected in the fall and spread on gardens as a mulch. It can be tilled into the garden in the spring.

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